

Assignments

1) Write function file for following 2 equations:

$$C_p = 4a(1-a)^2$$

$$C_{Dax} = 4a(1-a)$$

and plot variables C_p and C_{Dax} for values of a in between -0.5 and 1

2) Write function file for following equation:

$$F(U) = 1 - e^{-\left(\frac{U}{a}\right)^k} \quad \text{with } U: \text{ mean wind speed (m/s).}$$

Plot F as function of U for $k=2$ and $a=9$ m/s. Add in the same plot F for a different value of k (in between 1.5 and 2.5) and a (in between 7 and 11).

3) Write function file for following equation:

$$V(h) = V(h_{ref}) \frac{\ln\left(\frac{h}{z_0}\right)}{\ln\left(\frac{h_{ref}}{z_0}\right)}$$

with V: mean wind speed (m/s)
and h: height (m)
Note: “ln” is natural logarithm

Plot V as function of h for $h_{ref}=10$ m, $V(h_{ref})=8$ m/s and $z_0=0.03$ m.
Add in the same plot V for a different value of z_0 (in between 0.01 and 0.5).

Good programming practice

- Divide problem into parts (which are easier to solve)
- How should you solve the problem 'manually'?
- Take some specific example and try to generalize (generalisation can be checked by specific example)